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EpiCon Lab

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Descriptive Analysis of Folate Supplementation Patterns and RBC Folate Levels in Women of Reproductive Age in a Brazilian Hospital

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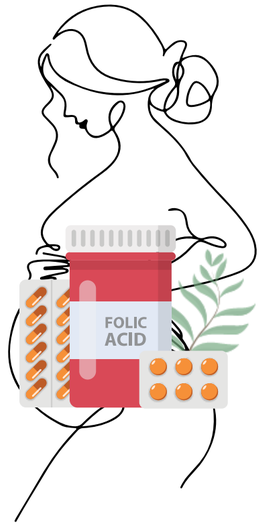
Introduction

Periconceptional folic acid supplementation
0.4 mg/day or 4 mg/day (presence of risk factors)



Neural tube defect (NTD) prevention

Excessive intake and alternative formulations are controversial

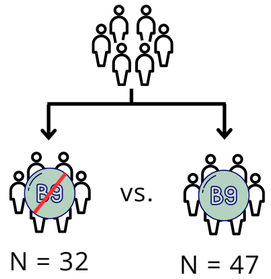
Brazil's public health system (SUS) distributes folic acid at 5 mg dose

Aim: to evaluate folate supplementation patterns and status in women attending in the Hospital de Clínicas de Porto Alegre (HCPA)

Methods

Ethics approval
(CAAE: 79644924.0.0000.5327)

Pregnant and childbearing age women
Observational study



N = 32 N = 47

Consent form
Questionnaire

Blood sample

Red blood cell (RBC) folate assesment

DNA and RNA extraction

Results

Table 1: Participant's characteristics

	B9	B9
Pregnant women		
Yes	3 (10.3%)	34 (72.3%)
No	29 (89.7%)	13 (27.7%)
Age (years)		
	33.5 (31-34)	31 (27-35)
Body mass index (kg/m²)		
	29.24 (24.59-33.44)	28.15 (24.07-33.41)
RBC Folate (ng/mL)		
	792.5 (670.5-946.25)	1130 (959.5-1237.5)
Daily folate intake (µg)		
	275.85 (177.78-412.84)	343.17 (268.07-438.33)
Alcohol consumption		
Yes	14 (43.8%)	4 (8.5%)
No	18 (56.2%)	43 (91.5%)
Tobacco		
Yes	2 (6.2%)	2 (4.2%)
No	30 (93.8%)	45 (95.8%)
Education		
High school or lower	13 (40.6%)	24 (51%)
Higher education	19 (59.4%)	23 (49%)
Ethnic-racial self-declaration		
Black	4 (12.5%)	4 (8.5%)
Brown	4 (12.5%)	9 (19.2%)
White	23 (71.9%)	34 (72.3%)
Indigenous	1 (3.1%)	0

Median supplementation period
159.5 days (119.25-245.25)

Graph 1: Distribution of patients according to folate formulation

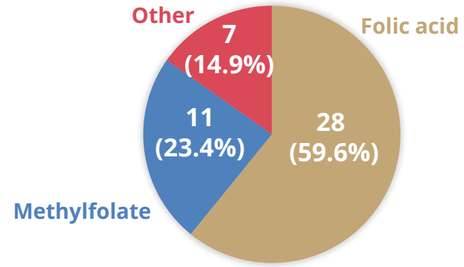


Table 2: Supplementation dose and folate status

Dose	Median RBC folate (ng/mL)
Low (N = 17)	1061 (955-1220)
High (N =16)	1252.5 (953.75-1910.75)
Diverse (N=12)	1138 (968.5-1203)

The results are presented as median (IQR) or number (%). RBC folate reference values: 523 ng/mL – 1257 ng/mL. Low dose (0.1-0.8 mg/day); High (≥ 5 mg/day); Diverse (alternative or combined doses).

Conclusion: Folic acid is the only folate formulation proven effective for NTD prevention, yet 38.3% of patients used alternative formulations, emphasizing the need for clearer public policies and stronger evidence regarding alternative regimens. Although median folate status was adequate regardless of supplementation dose, some patients presented values above the reference range, underscoring the importance of monitoring high doses and potential excess. Future perspectives include investigating genetic polymorphisms and DNA methylation patterns.

Acknowledgments

CNPq CAPES UFRGS Universidade Federal do Rio Grande do Sul Hospital de Clínicas Porto Alegre RS PPGBM Programa de Pós-Graduação em Genética e Biologia Molecular da UFRGS